

1           1.       A method of interpreting a query formed of at least a first term and a  
2       second term with respect to a database of items, comprising:  
3           identifying at least one candidate single-term interpretation for the first term;  
4           identifying at least one candidate single-term interpretation for the second term;  
5           identifying one or more candidate multiple-term interpretations, wherein a  
6       candidate multiple-term interpretation is a combination of candidate single-term  
7       interpretations;  
8           providing a plurality of semantic approaches for associating one or more of the  
9       candidate multiple-term interpretations with items in the database; and  
10          determining a contextual score for each candidate multiple-term interpretation  
11       using the database and at least one of said semantic approaches.

1           2.       The method of claim 1, wherein the plurality of semantic approaches  
2       include treating a candidate multiple-term interpretation as a conjunction.

1           3.       The method of claim 1, wherein the plurality of semantic approaches  
2       include treating a candidate multiple-term interpretation as a disjunction.

1           4.       The method of claim 1, wherein the plurality of semantic approaches  
2       include partially matching a candidate multiple-term interpretation.

1           5.       The method of claim 1, wherein the plurality of semantic approaches  
2       include a disjunctive approach, a conjunctive approach and a partial match approach.

1           6.       The method of claim 1, wherein for at least one candidate multiple-term  
2     interpretation the contextual score incorporates information about the semantic approach  
3     that is used.

1           7.       The method of claim 6, wherein incorporating information about the  
2     semantic approach includes using a measure of the number of terms in the candidate  
3     multiple-term interpretation that are in an associated result set.

1           8.       The method of claim 7, wherein using a measure of the number of terms in  
2     the candidate multiple-term interpretation that are in an associated result set is a dominant  
3     factor in determining a contextual score.

1           9.       The method of claim 1, wherein determining a contextual score for each  
2     candidate multiple-term interpretation includes using a first of said plurality of semantic  
3     approaches for identifying an associated result set for a first candidate multiple-term  
4     interpretation and a second of said plurality of semantic approaches for identifying an  
5     associated result set for a second candidate multiple-term interpretation.

1           10.      The method of claim 1, wherein determining a contextual score for each  
2     candidate multiple-term interpretation includes applying a first of said plurality of  
3     semantic approaches for identifying a first associated result set and a second of said  
4     plurality of semantic approaches for identifying a second associated result set for a first  
5     candidate multiple-term interpretation and selecting between the first of said plurality of  
6     semantic approaches and the second of said plurality of semantic approaches for  
7     determining the contextual score for the first candidate multiple-term interpretation.

1           11.      A method of interpreting a query formed of at least a first term and a  
2     second term with respect to a database of items, comprising:

3 identifying at least one candidate single-term interpretation for the first term;  
4 identifying at least one candidate single-term interpretation for the second term;  
5 pruning the candidate single-term interpretations;  
6 identifying one or more candidate multiple-term interpretations, wherein a  
7 candidate multiple-term interpretation is a combination of candidate single-term  
8 interpretations that have not been pruned; and  
9 determining a contextual score for each candidate multiple-term interpretation  
10 using the database.

1 12. The method of claim 11, wherein pruning includes eliminating each  
2 candidate single-term interpretation to which insufficient items in the database  
3 correspond.

1 13. The method of claim 12, wherein eliminating each candidate single-term  
2 interpretation to which insufficient items in the database correspond comprises generating  
3 a query that identifies a maximal result set of the candidate single-term interpretations,  
4 evaluating an intersection query for each candidate single-term interpretation with the  
5 maximal result set to identify results for the intersection query, and eliminating each  
6 candidate single-term interpretation for which the intersection query yields fewer results  
7 than a threshold.

1 14. The method of claim 13, wherein the threshold is 1.

1 15. The method of claim 12, wherein pruning includes determining a maximal  
2 result set of the candidate single-term interpretations.

1           16.     The method of claim 12, wherein eliminating each candidate single-term  
2     interpretation to which insufficient items in the database correspond includes identifying  
3     results of a union of all of the potential candidate multiple-term interpretations, and  
4     eliminating candidate single-term interpretations that do not have associated items in the  
5     results of the union.

1           17.     The method of claim 12, wherein eliminating each candidate single-term  
2     interpretation to which insufficient items in the database correspond includes identifying  
3     results of a union of all of the potential candidate multiple-term interpretations, and  
4     eliminating candidate single-term interpretations that have fewer associated items in the  
5     results of the union than a threshold.

1           18.     The method of claim 11, further comprising determining a context-  
2     independent score for each candidate single-term interpretation, wherein pruning includes  
3     using the context-independent scores of the candidate single term interpretations for  
4     selecting candidate single-term interpretations to prune.

1           19.     A computer program product, residing on a computer readable medium,  
2     for use in interpreting queries composed of at least a first term and a second term relative  
3     to a database of items, the computer program product comprising instructions for causing  
4     a computer to:

5             identify at least one candidate single-term interpretation for the first term;

6             identify at least one candidate single-term interpretation for the second term;

7             identify one or more candidate multiple-term interpretations, wherein a candidate  
8     multiple-term interpretation is a combination of candidate single-term interpretations;

9 provide a plurality of semantic approaches for associating candidate multiple-term  
10 interpretations with items in the database; and

11 determine a contextual score for each candidate multiple-term interpretation using  
12 the database and at least one of said semantic approaches.

1 20. The computer program product of claim 19, wherein for at least one  
2 candidate multiple-term interpretation the contextual score incorporates information  
3 about the semantic approach that is used.

1 21. The computer program product of claim 19, wherein the plurality of  
2 semantic approaches include a conjunctive approach.

1 22. The computer program product of claim 19, wherein the plurality of  
2 semantic approaches include a disjunctive approach.

1 23. The computer program product of claim 19, wherein the plurality of  
2 semantic approaches include a partial match approach.

1 24. The computer program product of claim 19, wherein the plurality of  
2 semantic approaches include a disjunctive approach, a conjunctive approach and a partial  
3 match approach.

1 25. The computer program product of claim 19, wherein instructions for  
2 causing a computer to incorporate information about the semantic approach used include  
3 instructions for using a measure of the number of terms in the candidate multiple-term  
4 interpretation that are in an associated result set.

1 26. The computer program product of claim 25, wherein using a measure of  
2 the number of terms in the candidate multiple-term interpretation that are in an associated  
3 result set is a dominant factor in determining a contextual score.

1           27.     The computer program product of claim 19, wherein instructions for  
2 causing a computer to determine a contextual score for each candidate multiple-term  
3 interpretation include instructions for using a first of said plurality of semantic  
4 approaches for identifying an associated result set for a first candidate multiple-term  
5 interpretation and a second of said plurality of semantic approaches for identifying an  
6 associated result set for a second candidate multiple-term interpretation.

1           28.     The computer program product of claim 19, wherein instructions for  
2 causing a computer to determine a contextual score for each candidate multiple-term  
3 interpretation include instructions for applying a first of said plurality of semantic  
4 approaches for identifying a first associated result set and a second of said plurality of  
5 semantic approaches for identifying a second associated result set for a first candidate  
6 multiple-term interpretation and selecting between the first of said plurality of semantic  
7 approaches and the second of said plurality of semantic approaches for determining the  
8 contextual score for the first candidate multiple-term interpretation.

1           29.     A computer program product, residing on a computer readable medium,  
2 for use in interpreting queries composed of at least a first term and a second term relative  
3 to a database of items, the computer program product comprising instructions for causing  
4 a computer to:

5           identify at least one candidate single-term interpretation for the first term;  
6           identify at least one candidate single-term interpretation for the second term;  
7           prune the candidate single-term interpretations;

8           identify one or more candidate multiple-term interpretations, wherein a candidate  
9   multiple-term interpretation is a combination of candidate single-term interpretations that  
10   have not been pruned; and

11           determine a contextual score for each candidate multiple-term interpretation using  
12   the database.

1           30.    The computer program product of claim 29, wherein instructions for  
2   causing a computer to prune include instructions for eliminating each candidate single-  
3   term interpretation to which insufficient items in the database correspond.

1           31.    The computer program product of claim 30, wherein eliminating each  
2   candidate single-term interpretation to which insufficient items in the database  
3   correspond further includes generating a query that identifies a maximal result set of the  
4   candidate single-term interpretations, evaluating an intersection query for each candidate  
5   single-term interpretation with the maximal result set to identify results for the  
6   intersection query, and eliminating each candidate single-term interpretation for which  
7   the intersection query yields fewer results than a threshold.

1           32.    The computer program product of claim 31, wherein the threshold is 1.

1           33.    The computer program product of claim 30, wherein instructions for  
2   causing a computer to prune include instructions for determining a maximal result set of  
3   the candidate single-term interpretations.

1           34.    The computer program product of claim 30, wherein eliminating each  
2   candidate single-term interpretation to which insufficient items in the database  
3   correspond includes identifying results of a union of all of the potential candidate

4 multiple-term interpretations, and eliminating candidate single-term interpretations that  
5 do not have associated items in the results of the union.

1 35. The computer program product of claim 30, wherein eliminating each  
2 candidate single-term interpretation to which insufficient items in the database  
3 correspond includes identifying results of a union of all of the potential candidate  
4 multiple-term interpretations, and eliminating candidate single-term interpretations that  
5 have fewer associated items in the results of the union than a threshold.

1 36. The computer program product of claim 30, wherein instructions for  
2 causing a computer to prune include instructions for using the context-independent scores  
3 for selecting single-term interpretations to prune.

1 37. A method of interpreting a query formed of at least a first term and a  
2 second term with respect to a database of items, comprising:

3 identifying at least one candidate single-term interpretation for the first term;

4 identifying at least one candidate single-term interpretation for the second term;

5 determining a context-independent score for each candidate single-term  
6 interpretation;

7 identifying one or more candidate multiple-term interpretations, wherein a  
8 candidate multiple-term interpretation is a combination of candidate single-term  
9 interpretations;

10 determining a combined context-independent score for each candidate multiple-  
11 term interpretation using the context-independent score for each candidate single-term  
12 interpretation in the candidate multiple-term interpretation;



13 providing a plurality of semantic approaches for associating one or more of the  
14 candidate multiple-term interpretations with items in the database;

15 determining a contextual score for each candidate multiple-term interpretation  
16 using the database and at least one of said semantic approaches, wherein for at least one  
17 candidate multiple-term interpretation the contextual score incorporates information  
18 about the semantic approach that is used; and

19 determining an overall score for each candidate multiple-term interpretation by  
20 using the contextual score and the combined context-independent score for the multiple-  
21 term interpretation.

1 38. A method of interpreting a query formed of at least a first term and a  
2 second term with respect to a database of items, comprising:

3 identifying at least one candidate single-term interpretation for the first term;

4 identifying at least one candidate single-term interpretation for the second term;

5 determining a context-independent score for each candidate single-term  
6 interpretation;

7 pruning the candidate single-term interpretations;

8 identifying one or more candidate multiple-term interpretations, wherein a  
9 candidate multiple-term interpretation is a combination of candidate single-term  
10 interpretations that have not been pruned;

11           determining a combined context-independent score for each candidate multiple-  
12 term interpretation using the context-independent score for each candidate single-term  
13 interpretation in the multiple-term interpretation;

14           determining a contextual score for each candidate multiple-term interpretation  
15 using the database; and

16           determining an overall score for each candidate multiple-term interpretation by  
17 using the contextual score and the combined context-independent score for the multiple-  
18 term interpretation.

1           39.     A computer program product, residing on a computer readable medium,  
2 for use in interpreting queries composed of at least a first term and a second term relative  
3 to a database of items, the computer program product comprising instructions for causing  
4 a computer to:

5           identify at least one candidate single-term interpretation for the first term;

6           identify at least one candidate single-term interpretation for the second term;

7           determine a context-independent score for each candidate single-term  
8 interpretation;

9           identify one or more candidate multiple-term interpretations, wherein a candidate  
10 multiple-term interpretation is a combination of candidate single-term interpretations;

11           determine a combined context-independent score for each candidate multiple-term  
12 interpretation using the context-independent score for each candidate single-term  
13 interpretation in the multiple-term interpretation;

14 provide a plurality of semantic approaches for associating candidate multiple-term  
15 interpretations with items in the database;

16 determine a contextual score for each candidate multiple-term interpretation using  
17 the database and at least one of said semantic approaches, wherein for at least one  
18 candidate multiple-term interpretation the contextual score incorporates information  
19 about the semantic approach that is used; and

20 determine an overall score for each candidate multiple-term interpretation by  
21 using the contextual score and the combined context-independent score for the multiple-  
22 term interpretation.

1 40. A computer program product, residing on a computer readable medium,  
2 for use in interpreting queries composed of at least a first term and a second term relative  
3 to a database of items, the computer program product comprising instructions for causing  
4 a computer to:

5 identify at least one candidate single-term interpretation for the first term;

6 identify at least one candidate single-term interpretation for the second term;

7 determine a context-independent score for each candidate single-term  
8 interpretation;

9 prune the candidate single-term interpretations;

10 identify one or more candidate multiple-term interpretations, wherein a candidate  
11 multiple-term interpretation is a combination of candidate single-term interpretations that  
12 have not been pruned;

13           determine a combined context-independent score for each candidate multiple-term  
14   interpretation using the context-independent score for each candidate single-term  
15   interpretation in the multiple-term interpretation;

16           determine a contextual score for each candidate multiple-term interpretation using  
17   the database; and

18           determine an overall score for each candidate multiple-term interpretation by  
19   using the contextual score and the combined context-independent score for the multiple-  
20   term interpretation.